To: Rafael Casanova
From: Jessica White, Tammy Ash, Ken Rice, Keith Tischler, Richard Seiler, Don Pitts
Date: October 8, 2004
Re: Comments for 'RI/FS Draft Sampling and Work Plans' for Falcon Refinery Superfund site

National Oceanic and Atmospheric Administration, Texas General Land Office, and US Fish and Wildlife Service would like to provide the following comments for your consideration.

General Comment 1:

Several inappropriate comments were noted throughout this document, and have been listed in the specific comments section below. It is important to include information relevant to the remedial investigation foremost; speculation and opinion are not appropriate in such reports.

General Comment 2:

It is not clear what the COPCs are for the site. It appears that the only COPCs to be assessed are from the 'Skinner list', which is applicable to RCRA sites. The COC list needs considerable further development. Rationale for this list should be to include any and all constituents produced and used on the site for the initial investigation. Further evaluation may eliminate some COPCs from the risk assessment, but this requires a scientifically sound basis for their exclusion. CERCLA requires investigation of all hazardous substances associated with Superfund sites. It is also necessary to ensure that all COPCs evaluated are in an appropriate form for analysis in risk assessment. For example, it is necessary to provide both total and dissolved metal concentrations in sampled media. This is because the dissolved form of metals is more relevant to establishing risk to exposed biota since it is more available for uptake.

General Comment 3:

Security on-site seems to have been lax in the past, since the draft Work Plan repeatedly mentions the site was "unlocked" and neighbors illegally dumping on the Falcon Site. It would be in NORCO's best interests to prevent future dumping and unauthorized access by providing appropriate security at the site.

General Comment 4:

The site evaluated in the RI/FS includes the North and South portions of the refinery as well as the dock facility on Redfish Bay, but does not include the pipelines owned or operated by the facility to transfer product to the dock facility. The status of these pipelines, including locations, which ones are currently in use or were used in past operations, and the type of materials transported or remaining in the pipelines is unknown. This represents a large uncertainty with regard to human health and ecological risk. Records from the HRS package as well as from Texas Parks and Wildlife's Spills Database indicate various pipeline breaks and spills in the past in areas which are currently not evaluated in the RI/FS. Future removal actions on-site may not address exposure from abandoned pipelines which still contain material. The RI/FS should at least include some discussion of these pipelines, any plans to determine the composition of material remaining in them, and any plans to decommission them.

General Comment 5:

The adjacent wetlands serve as an exposure point for both human health (duck hunters and fishermen) and ecological receptors. We recognize that sediment samples taken from the wetlands in the HRS package were less than TCEQ Direct Human Contact Sediment PCLs, however they were not compared to ecological screening levels, therefore the wetlands adjacent to the site have not been ruled out as a source of contamination and as a contaminant exposure pathway. Because of this, it is appropriate to include the adjacent wetlands in the RI/FS Investigation.

General Comment 6:

Inclusion of a topographic map of the site would be beneficial in supporting sample location rationale (for example 5.2.1.5 and similar references for other Source Areas) as well as providing a visual reference for over-all site drainage patterns, even given the limited elevation change.

General Comment 7:

Given the occurrence of visibly contaminated soil and known releases, how will contamination associated with surface water flow (including sheet flow) be addressed? Clearly identify/reference how surface flow impacts will be evaluated and potentially resolved. Significant rainfall events can result in sheet flow as drainage feature capacity is overwhelmed. Brief reference to the frequency of such events, based upon meteorological records, would help to qualify this component as a possible contributor or non-contributing factor. Sporadic reference is made to addressing runoff (sampling associated with drainage ditches and prior sampling results), however a unified discussion and rationale to approach is needed.

General Comment 8:

Proper disposal of tank material, tank contents, grossly contaminated soil, and infrastructure material (piping) is a relative component of the project. A brief, preliminary, description of how and where this material will be disposed of is appropriate for the Work Plan and referenced in the Sampling Plan. For example, 'Grossly contaminated soil will be disposed of at a commercial land fill permitted to accept hazardous listed and non-listed waste in accordance with 40 CFR Chapter I, 261.31 and 261.32'.

Specific Comments – Draft RI/FS Work Plan

Section 2.1 – Site History, page 2

The refinery has clearly been used as a slop oil or recycling facility based upon discovery of various hazardous substances not associated with oil refinery operations. These recycling activities are likely to have had a significant influence on the nature and extent of site contamination due to the use of these additional constituents. It is necessary to include information relating to all known site activities in order to conduct a thorough investigation.

Section 2.1 – Site History, page 3

The statement that 'NORCO never operated the facility or spilled any materials' is not appropriate and contentious. It should be removed from the document. None of the site history attempts to identify spill events, merely owners and operators. Therefore the reference indicating NORCO had never spilled any materials is incongruous with the information identified in the narrative and should be removed unless a complete discussion of all documented and probable spill events is undertaken.

Section 2.2.1 – Site Physical Characteristics, page 3

The statement 'When the site was unlocked the neighbors poured used motor oil around this tank' is not appropriate and contentious. It should be removed from the document.

Section 2.2.1.2 - Geology, page 4

The conclusion that limited depth to groundwater results in the minimal (or likely minimal) impact to soil from hydrocarbon constituents is premature. It would be more accurate to characterize potential impacts as limited in extent with respect to surface and near surface geology. Though limited in extent impacts may still be considerable in degree. Note reference in 4.0 Sampling Plan, second paragraph, "Areas with grossly contaminated soil will be..." in Draft RI/FS Sampling Plan. Recommend the text be modified to reflect this possibility. An enhanced description of surficial geology would be appropriate as well as a more detailed description of local structure, and stratigraphy that could influence hydraulic connectivity (isolated occurrences of freshwater lens typical for the area, etc..),. A detailed regional geologic description is not necessary for the reasons stated in the plan.

Section 2.2.1.3 - Soil and Vadose Zone, page 4

Reference regional soil and vadose zone characteristics in absence of site specific data.

Section 2.2.1.6 - Human Population and Land Use, page 8

Confirm active well locations represented in 1-mile radius reflect well reports. On the electronic copy (CD) of the Work Plan, on PDF page 148, hand-drawn map (referenced as Map ID #4) identifies well location between bay and refinery, southeast of the refinery, just off of the crooked road spur closest to the bay. This does not match well locations plotted in Figure 7. Though well report maps are often inaccurate, or the well may be inactive, confirm the locations translated to the map are accurate and that map ID's for separate wells have not been inadvertently grouped together.

Section 2.2.2 - Definition of Sources of Contamination and 2.2.3 Nature and Extent of Contamination, page 9

The HRS and BNC report texts are not readily distinguishable. Clearly differentiate between all text drafted directly from HRS and that comprising this report (quotes, consistent bold or italics usage, etc.). Reference is made to the text being taken directly from the Hazard Ranking System (HRS) Documentation Record, as well as references within the section referring to HRS exerpts (Page 15..."The following three paragraphs). Narrative regarding the HRS text is also present within the section.

Section 2.2.3.1 - Groundwater, page 13

Briefly identify significance of 0.25 mile well radius reference (limited hydraulic connectivity, groundwater flow direction, etc.). If text is from the HRS draft, provide additional clarification accordingly. Identify if any water wells have or have not recorded contamination within the one-mile radius of Falcon. If text from HRS draft provide additional clarification accordingly. Consider reference similar to that in 5.5.9 Water Use with regard to applicable, planned, additional site investigation activities.

Section 2.2.3.2 - Soil, page 14, last paragraph bold response

Clarify statement by citing specific data, field notes, sample numbers, and documentation that indicates samples were taken from the tanks. Cite specific notification to TNRCC that confirms that the agency had been informed of "solvent like" materials from Tenneco in January 1986.

Section 2.2.3.2 - Soil, page 16, Source Area descriptions

Please list for all the constituents identified their concentrations with respect to the cited PCL's for each area (even if a non-excedence). Include/reference Figure with Source Areas identified and Table with analytical results.

Section 2.2.3.2 - Soil, page 16, Source Area 3 Description

Reference is made to Thallium as naturally occurring. If the intent is to propose that background Thallium levels are elevated for this area then such a statement should be made and followed up with TCEQ accordingly. Otherwise reference should be omitted. Also note, Thallium is an element and can comprise part of a mineral

assemblage, however its elemental form does not stand alone as a mineral assemblage (as occurs with some other elements).

Section 2.2.3.4 – Sediments, page 18

It is inappropriate to draw any conclusions regarding potential concerns about sediments based upon human health criteria alone. Ecological criteria for sediments must be evaluated, as ecological receptors are likely to have greater exposures to this medium than humans.

Section 2.2.3.5 - Air, page 19, third paragraph, second sentence

Identify the amount of additional storage added under permit numbers C-6607 and C-6027. State the nature of the violation cited in the TACB letter with respect to the permitted actions (ex. 40,000 barrel capacity for 15,000 permitted, or type of facility constructed).

Section 2.2.3.5 - Air, page 20

Reference to Tenneco waste and spill from 10-inch pipe should be linked back to references in 2.2.3.2 Soil Page 14 or see Comment on Structure of Report for Soil, Surface Water, Sediment, and Air HRS history.

Section 2.2.4.1 - Other Sources, page 20

Detailed listing of all adjacent industry is not necessary. A brief reference to the highly industrialized area adjacent the site and identification of only those events (spills or types of emissions) that share potential chemicals of concern with those identified for Falcon (NORCO) are necessary. Identify specific candidates, constituents, and events in connection with specific samples attributed to Falcon for which consideration of alternate sources is sought as well as rationale (hydrologic gradient, etc.)

Section 4.0 – Work Plan Rationale, page 23

It is incorrect to state that there is a lack of 'delineation of any of the spills or releases'. The HRS package and other sections of this RI/FS plan provide evidence of numerous spills on the site.

Section 5.5.1 – General Site Description, page 24

It is apparent from several reports that Falcon Refinery was used as a slop oil/recycling facility subsequent to operating as a refinery. These activities likely had a significant influence on the nature and extent of site contamination due to the use of additional constituents not normally associated with crude oil. It is necessary to include information relating to all known site activities to conduct a thorough assessment.

Section 5.5.5 – Guidelines for Selection of Chemicals of Potential Concern, page 27

This section outlines the guidelines for selection of COPCs but fails to include mention of comparing COPC levels against ecological screening benchmarks such as those found in the TCEQ ERA Guidance document. A COPC present at levels less than Human Health PCLs but at levels greater than ecological screening levels should be retained for evaluation in the Ecological Risk Assessment.

Section 5.5.7 – Setting, page 28

This section states that "Currently land use at the Site is limited to several above-ground tanks located on the refinery portion of the Site and the docking facility, which are used for crude oil storage and transportation." This is partly correct, but it should be noted that pipelines between the facilities are also being used by Superior Oil. Also it would be helpful to have indicated on a map which tanks are in continued use.

5.6.1, 5.6.2 Screening Level Problem Formulation, Screening Level Exposure Estimate and Risk Calculation, Page 36

Note is made of EPA references and to available peer reviewed ecotoxicity benchmarks. Cite a few specific examples and/or guidance to be followed as done in prior sections and subsections.

Section 5.6.2.1.3 - Sediments, page 38

Last sentence states most of the above databases will be consulted for appropriate values. Please clarify identifying that applicable values will be taken from the above databases, the hierarchy of selection in the event values differ between databases, and the rationale and approach to determining values that may not be available in the referenced databases.

Section 5.6.3.1.4 – Identification of Ecological Receptors, page 41

This section states that "selection of potential target receptors that are likely to occur at or in the general vicinity of the landfill will be completed..." Please correct this error or clarify which source area the statement is referencing.

Section 5.6.3.1.6 – Ecotoxicity of Contaminants, page 43

This section stated that "Federal and State AWQC will be used to evaluate toxic effects of fish and other aquatic species in surface water and the palustrine/estuarine wetlands and Redfish Bay." While AWQC are assumed to be protective of fish and aquatic invertebrates from a surface water standpoint, they do not take into account ingestion of contaminated sediment. The sediment to invertebrate and sediment to fish pathways will need to be addressed in the ecological risk assessment, thus the RI/FS may also need to consider using ecological sediment screening levels when determining the toxic effects to fish and other aquatic species.

<u>Specific Comments – Draft RI/FS Field Sampling Plan</u>

Section 4.0 - Sampling Objectives, General

Delineation of contaminant extent, in all mediums should be a primary focus (though not sole focus) of the sampling plan. Please elaborate on the statement in the first paragraph that some areas may not be completely delineated until after the removal action and specify the follow-on actions that will be conducted to fully delineate contamination. Any proposed follow-on actions should be described in detail to the maximum extent practicable as part of the Sampling Plan and Work Plan. The

importance of removing the onsite infrastructure and contained waste does not negate the significance of fully delineating contamination. Ultimately, a fully integrated plan may prove more cost effective. Note the statement referenced above appears inconsistent with the FSP data objectives of 'definition of the nature and extent of contamination.' from paragraph four.

Section 5.1.2 – North Site Status as of August 2004, page 3

The statement 'When the site was unlocked the neighbors poured used motor oil around this tank' is not appropriate and contentious. It should be removed from the document. Clarify as to whether the source (origin) of the tanks, the source for the material within the tanks, or both is referred to in this paragraph.

Section 5.1.3 - Adjoining Plains Marketing Facility, and referenced Figure 3: Figure 3 is illegible. Add labels to graphic if a more legible copy cannot be reproduced. Given the emphasis on Plains as potential NORCO site groundwater contaminant source, it is particularly important the figure is legible.

Section 5.1.3 - Adjoining Plains Marketing Facility, General: Reference to TCEQ having the information indicating that the Plains facility adjacent the North Site does not provide additional insight as Plains Marketing has acknowledged contamination through participation in the Voluntary Cleanup Program and monitor well sample results have been provided within this report. As this adjacent site is referenced as a potential source, highly recommend providing specific details with respect to VCP status, intended actions, actions taken to date, implications for the NORCO site, and briefly highlighting monitoring efforts at the NORCO site (as described in 5.1.4 & 5.1.5) that will assist in identifying off-site sources (concentration gradient with respect to monitor well location).

Section 5.1.3 - Adjoining Plains Marketing Facility, 2nd paragraph: Reference to consistent southeast groundwater flow needs additional supporting information given proposed implications for NORCO site. The gradient adjacent the northern boundary of the NORCO facility (Figure 3) does not appear definitive given contour line 12, though poor legibility of Figure 3 makes supporting detail difficult to discern. Additional contour maps, displaying consistent flow direction over the course of several monitoring events, and preferably seasons, are necessary to support the statement that the gradient is consistent.

Section 5.3 – Sediment Sampling Plan, page 16

The wetlands may be a source of contamination if the surface water or sediments contain COPCs in concentrations sufficient to exert adverse effects on exposed biota. Documented spills into the wetlands necessitate the need for further delineation of their contamination before wetlands can be excluded as a source. It is not clear from the selected exerts that sampling toward the final objective is not in compliance with the provisions of the "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA". In fact the requested sampling would appear to directly

support the stated final objective. Initiating sampling at source areas does not inherently exclude contemporaneously extending sample coverage to include highly probable areas of contaminant migration based on known physical parameters and events (site drainage and spill events). Multiple releases are documented within this report as well as site topography that favors drainage towards wetland frontage (described in 5.2.3.5, Proposed Groundwater Investigations for Spill Area 3, Rationale for selecting the locations for monitoring wells, first bullet item, second sentence and drainage ditches identified in Figure 1). Surface water runoff alone, based on the surface exposure of contaminants documented within the report and the sites proximity to wetlands (especially, but not solely, source areas 2, 4, and 5 as they lack any form of containment ref Figure 7) supports the proposed sampling.

Section 5.3.2 – Sediment Sampling Data, page 17

It is premature to suggest the elimination of a portion of the site based upon existing data. The detection limits for several COPCs are below the ecological criteria established by the EPA. Therefore, the COPCs found in this area pose a potential risk to exposed receptors and warrant further evaluation. It is also inappropriate to draw any conclusions regarding potential concerns about sediments based upon human health criteria alone. Ecological criteria for sediments must be evaluated, as ecological receptors are likely to have greater exposures to this medial than humans.

Section 5.3.3 – Sediment Sampling Status as of August 2004, page 17

This section provides no information about the status of sediment sampling as of August 2004. Existing language in this section should be stricken and amended with relevant information.

Section 5.3.4 – Proposed Sediment Sampling Investigation, page 17

The Sampling Plan should be revised to include more detail on the soil and sediment borings. The Plan indicated the samples will be taken from 0-2 feet. We usually recommend taking individual samples within 0-0.5 feet in order to obtain ecologically relevant concentrations (oxidized portion of sediment which supports benthic invertebrates), in accordance with the TCEQ ERA Guidance. Three samples from the two discharge areas may not be sufficient to characterize the distribution and concentration of COPCs in wetlands. Additional sampling may be necessary. COPCs of investigation should extend beyond the 'Skinner list' (see General Comment 2).

Section 5.4 – Proposed Surface Water Sampling, page 18

COPSs of investigation should extend beyond the 'Skinner list' (see General Comment 2).

Appendix A – Standard Operating Procedures

It appears that the SOP for obtaining sediment samples is missing. Please include if this is the case.